

Preface

This volume contains some of the works presented in the 9th Latin-American Workshop on Cliques in Graphs - LAWCG 2020, which was held remotely in Rio de Janeiro, Brazil, on November 25th, 2020. The Latin American Workshop on Cliques in Graphs is becoming a traditional workshop on Graph Theory, and each year has attracted people from more and more countries. Previous editions have been held in the following countries: Brazil (2002), Argentina (2006), Mexico (2008), Brazil (2010), Argentina (2012), Brazil (2014), Argentina (2016), and Brazil (2018). In its origins, the workshop was meant to foster interaction between the Latin-American researchers working on Graph Theory and Combinatorics, with particular interest on cliques, clique graphs, the behavior of the clique operator, and related issues. In these eighteen years, the community has grown and the workshop has become not only a place for exchanging ideas on cliques, but a moment to strengthen the bonds between its community members as well as to start new relations.

As so many other conferences, LAWCG 2020 was held online and we had the pleasure of hosting it together with the VIII Matemática Discreta e Aplicações (MDA) workshop. The MDA is a workshop organized each year since 2013 by the Antena Brasileira de Matemática and has the important mission of bringing together academy and schools.

We are grateful to the members of the Steering and Program Committees and especially to the members of the Organizing Committee, who have worked hard in carrying out the challenges for successfully holding the meeting online. The scientific community strongly supported LAWCG + MDA'20 with 58 poster submissions by 126 authors from eight countries: Argentina, Brazil, Chile, France, Mexico, The Netherlands, Norway, and Portugal. More details can be checked on the website <https://www.lawcg.mat.br/lawcg20/>.

LAWCG + MDA'20 had the honor of celebrating the 70th birthday of Professor Célia Picinin de Mello. We thank the invited speakers, Professors João Meidanis, Carmen Ortiz, Mónica Villanueva and Aurora Morgana, for their enthusiastic participation in the event and for their contribution to the proceedings. João Meidanis is a coauthor and a close colleague of Célia at UNICAMP, Carmen Ortiz and Mónica Villanueva from Chile have been close to Célia since their time together under the supervision of Jayme L. Szwarcfiter at UFRJ, and Aurora Morgana has been the most frequent coauthor of Célia since her post-doctorate in Italy.

Finally, we would like to thank the Editor-in-Chief of *Matemática Contemporânea*, Jaqueline Godoy Mesquita, for opening this important forum for the participants of this Latin-American Workshop.

Celina H. de Figueiredo
Sheila Almeida
Ana Shirley Silva
Márcia R. Cappelle

Works presented at LAWCG 2020

Plenary Talks

- Network Science: a primer
João Meidanis, UNICAMP, Brazil
- A Survey on Independent Sets in Graphs
Carmen Ortiz, UV, Chile, and Mónica Villanueva, USACH, Chile
- A tribute to Célia P. de Mello
Aurora Morgana, Universita di Roma “La Sapienza”, Italy

Contributed Posters

- Total coloring of some unitary Cayley graphs
D. Castonguay, C.M.H. de Figueiredo, L.A.B. Kowada, C.S.R. Patrão, D. Sasaki and M. Valencia-Pabon
- Paths On Hosts: B1-EPG, EPT and VPT Graphs
Liliana Alcón, Maria Pía Mazzoleni and Tanilson Santos
- A Matheuristic Approach for the Weighted Just-in-Time Scheduling Problem
Rainer Amorim, Rosiane de Freitas, Arthur Pessoa and Eduardo Uchoa
- Layout de Redes de Sensores Sem Fio com Múltiplas Origens e Destinos: Uma Abordagem Combinatória
Igor Morais, Liss Faulhaber, Felipe Henriques and Pedro Henrique González
- Logarithmic-Sobolev and Poincaré inequalities for the simple random walk on the Hanoi graph
Rodrigo Marinho
- On total coloring of circulant graphs
Matheus Aduino, Sergio Fusquino, Mauro Nigro and Diana Sasaki
- Equitable total coloring of Blowup snarks
Isabel Gonçalves, Simone Dantas and Diana Sasaki
- The Strict Terminal Connection Problem on Chordal Bipartite Graphs
Alexsander Melo, Celina Figueiredo and Uéverton Souza
- Bounds for Range-Relaxed Graceful game
Deise de Oliveira, Simone Dantas and Atílio Luiz
- The sandpile groups of outerplanar graphs
Carlos Alejandro Alfaro and Ralihe Raul Villagrán

- Properties of fullerene graphs with icosahedral symmetry
Thiago M. D. Silva, Diego Nicodemos and Simone Dantas
- A relationship between D-eigenvalues and diameter
Renata R. Del-Vecchio, Miriam Abdón and Tayná Lobo
- Conflict Free Closed Neighborhood Coloring Game
Rodrigo Chimelli and Simone Dantas
- Teaching Newton's Binomial with Genetics
Amanda Mourad, Simone Dantas and Telma Pará
- Strong pseudoachromatic number of split graphs
Aleff Correa, Sheila Almeida and Denise Maciel
- Enumeration of cospectral and coinvariant graphs
Aida Abiad and Carlos Alejandro Alfaro
- Intersection models for 2-thin and proper 2-thin graphs
Flavia Bonomo-Braberman and Gastón Brito
- A Near-tight Bound for the Rainbow Connection Number of Snake Graphs
Aleffer Rocha, Sheila Almeida and Leandro Zatesko
- Reduced indifference graphs are type 1
Sheila Almeida and Diana Sasaki
- On Embedding Trees in Grids
Vitor T. F. de Luca, Fabiano S. Oliveira and Jayme L. Szwarcfiter
- B1-EPG representations using block-cutpoint trees
Vitor T. F. de Luca, Fabiano S. Oliveira and Jayme L. Szwarcfiter
- Contact L-graphs and their relation with planarity and chordality
Flavia Bonomo-Braberman, María Pía Mazzoleni and Mariano Leonardo Rean
- Gráficas cuadrado-complementarias 4-regulares de cuello grande
Ariadna Juarez and Miguel A. Pizaña
- Total Coloring in Some Split-Comparability Graphs
Luis Gustavo da Soledade Gonzaga, Sheila Almeida, Cândida Nunes da Silva and Jadder Bismarck Sousa Cruz
- L(2,1)-labeling of Loupekine Snarks
José Robertty de Freitas Costa and Atílio Gomes Luiz
- Two Level Hamming-Huffman Trees
Min Lin, Fabiano Oliveira, Paulo Pinto, Moysés Sampaio Jr and Jayme Szwarcfiter
- A result on total coloring of fullerene nanodiscs
Mariana Martins Ferreira da Cruz, Diana Sasaki and Marcus Vinicius Tovar Costa

- Alliance and Domination on Uniformly Clique-expanded Graphs
Mitre C. Dourado, Rodolfo A. Oliveira and Alessandra B. Queiróz
- Sharp Bounds for the Annihilation Number of the Nordhaus-Gaddum type
Guilherme Porto, Daniel Jaume and Marco Puliti
- Un algoritmo lineal para el problema de la k-upla dominación en grafos web
María Patricia Dobson, Valeria Alejandra Leoni and María Inés Lopez Pujato
- Rotulação $\mathcal{L}(h, k)$ dos Sunlets
J. P. K. Castilho, C. N. Campos and L. M. Zatesko
- Emparelhamentos perfeitos no produto cartesiano de árvores
Lilith Barbosa, Cybele Vinagre and Mauro Weber
- Connected Matchings
Bruno P. Masquio, Paulo E. D. Pinto and Jayme L. Szwarcfiter
- Number of spanning trees of a subclass of matrogenic graphs
Robson Moura, Francisca França and André Brondani
- Arc-disjoint Branching Flows: a study of necessary and sufficient conditions
Cláudio Carvalho, Jonas Costa, Raul Lopes, Ana Karolinna Maia, Nicolas Nisse and Cláudia Linhares Sales
- Maximal Independent Sets in Graphs of Girth at Least 6
Márcia Cappelle, Marcelo Cardoso Dias and Vinícius Santos
- The 3-flow conjecture for almost even graphs with up to six odd vertices
Léo Peres and Ricardo Dahab
- 2-Independent Sets in Complementary Prisms
Márcia Cappelle and Otávio Mortosa
- Lexicographic Breadth-First Search and Exact Algorithms for the Maximum Clique Problem
Matheus Correa, Alexandre Züge and Renato Carmo
- Kernelization lower bounds for Multicolored Independent Set
Guilherme de Castro Mendes Gomes and Vinicius F. dos Santos
- Partitioning Graphs into Monochromatic Trees
Diego R. Costa, Phablo F. S. Moura and Vinicius F. dos Santos
- A_α -Spectrum of some Matrogenic Graphs
Nelson de Assis Junior, André Ebling Brondani and Francisca Andrea Macedo França
- Decomposing cubic graphs into locally irregular subgraphs
Fábio Botler and Wanderson Lomenha

- Some results on Vertex Separator Reconfiguration
Guilherme de Castro Mendes Gomes, Sérgio Henrique Nogueira and Vinicius F. dos Santos
- Generalized packing functions of graphs with few P_4 's
Erica Hinrichsen, Graciela Nasini, Pablo Torres and Natalí Romina Vansteenkiste
- O número de dominação total e independência aberta para produto lexicográfico de grafos
Isabela Carolina L. Frota and Erika Coelho
- Mutually Included Biclique Graphs of Interval Containment Bigraphs and Interval Bigraphs
Edmilson Pereira Da Cruz, Marina Groshaus and André L. P. Guedes
- Swapping Tokens on Graphs
Caio Tonetti, Vinicius F. dos Santos and Sebastián Urrutia
- On the edge- P_3 and edge- P_3^* -convexity of grid graphs
Moisés T. Carvalho, Simone Dantas, Mitre C. Dourado, Daniel F. D. Posner and Jayme L. Szwarcfiter
- Recognition of Biclique Graphs: What we know so far
Marina Groshaus and André L. P. Guedes
- Subclass Hierarchy on Circular Arc Bigraphs
Marina Groshaus, André L. P. Guedes and Fabricio Schiavon Kolberg
- Efficient characterizations and algorithms of tree t-spanners
Fernanda Couto, Luís Felipe Ignácio Cunha and Diego Amaro Ferraz
- Hamiltonicity of Token Graphs of Some Fan Graphs
Luis Manuel Rivera and Ana Laura Trujillo-Negrete